Enhancing IT Skills of Banking Employees through eLearning Technology

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Abstract: - In this paper an innovative architecture for teaching IT courses within a bank’s e-learning environment is demonstrated. This work is based on an autonomous module, which aims to improve employees’ IT skills. In addition, it helps employees handle and analyze several issues, thus improving their critical thinking in IT decision making.

Key-Words: - banking, e-learning

1 Introduction
E-learning technologies have been adopted by institutions, such as universities, schools and commercial enterprises [1][2][3],[9] either as facilitators to traditional teaching methods or as autonomous training tools [10]. Teaching material and methods have been developed accordingly for many academic disciplines, especially for computer science [11], [13]. Since students of computing schools and departments are the most familiar with the relative technology, they are the most receptive ones to e-learning technology as well. However, not all topics are easy to be implemented within an e-learning environment and taught in online mode. Several drawbacks arise when teaching non-students and especially professionals without IT background [12], [13], [15]. Such a case is employees working in the banking industry. Although banks are leaders in adopting innovative technology such as remote user’s authentication in the banking integrated systems, its VPNs [14], [16], and its authentication methods performance [8], they employ people from totally different backgrounds and ages. As a consequence, some employees lack familiarity to new technologies resulting in poor performance.

In this paper we demonstrate our architecture for teaching IT courses within the e-learning environment of a bank. This work is considered an initial step towards an autonomous module, which aims to improve employees’ IT awareness. In addition, it will help employees to handle and analyze several issues and, in this way, improve their critical thinking in IT decision making.

In the rest of this paper we present some background and motivation aspects (Section 2). Next (Section 3), we outline our architecture and conclude with some discussion and comments on future work (Sections 4, 5).

2 Background
Banking industry is a vertical market, where the adoption of innovative technology plays a critical role in competition and many times distinguishes the leaders from the laggards. However, banks usually employ people with different educational backgrounds and professional experience, so it becomes imperative to enhance their awareness of technology in an easy and efficient way.

Important issues that banks face today include having cost effective, highly accessible and efficient means of knowledge transfer. Furthermore, staff training should be personalized to match the needs of every individual and at the same time aligned with the daily operations of the bank, without compromising the quality of the learning material [4][5].

Traditional visual aids, such as videos, are powerful and flexible in illustrating concepts and ideas when coupled with lectures. Computer based training aids on the other hand, have the ability to combine images, video, sound and text. It can be individualized and flexible, with built-in assessment of skills, providing a cost effective education means over time. Today, asynchronous learning tools combine the traditional power of reading material and audio/video tape with data interaction mode such as email, discussion boards, groupware,
multimedia and web-based training. In addition, synchronous mode enables group instruction with teleconferencing, audio conferencing, videoconferencing, computer conference and chats.

E-learning has now become the dominant platform for distance education providing interactivity through utilization of internet technologies [6][7].

Collaborating with a Greek bank towards implementing an IT teaching module within its e-learning platform we retrieved some key data regarding employees, in order to customize the architecture and thus maximize acceptance and efficiency.

Significant issues, as depicted in the diagrams below (Fig. 1, 2, 3), were: the relatively high percentage of employees over 40 years old, who had comparatively low IT awareness but high resistance attitude towards technology innovations.

This was an indication that a complex platform would be rejected by this group of employees, though accepted by the group of younger and more familiarized with technology employees.

Since the effort of the bank was focused mainly on training the less IT familiar group of employees, we considered all the previous indications in the design process.

3 Proposed architecture

In order to maximize the participation of employees, we utilized e-learning technologies to develop the courses. We merged traditional teaching methods, such as lectures, with virtual team formation and remote collaboration in a way to achieve maximum involvement of employees. To improve IT awareness, we provided a number of case studies along with a brief analysis. E-learning technology provides substantial benefits, since it increases active participation and develops critical thinking, thus reducing lecture time only to the necessary topics.

Below we demonstrate our architecture (Fig. 4). The following components have been implemented:

- **User levels**: Class home with appropriate levels of entry (e.g. student, instructor, administrator).
- **Collaboration facilities**: Flexible virtual team formation, group debates, blackboard, role playing with hypothetical scenarios.
- **Communication facilities**: Communication between instructor and employees or teams, blackboard post.
- **Repositories**: Repositories provide all the necessary information for both employees and instructor and for this reason they become the core components of such a module. They contain a number of case studies, on which employees can work, following the instructor’s guidance.
• **Interfaces:** Flexible and simple to use interfaces provide easy access to all the repositories and facilities.

• **Assessment facilities:** Employees feel more comfortable with objective rather than subjective answers. Our target is to motivate them participate without being apprehensive about unfair assessment. A knowledge-base with a number of follow up questions, help employees to clarify concepts and practices. In addition, the instructor can evaluate individual or team performance, using the appropriate assessment tools.

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**Fig. 4.- Overall architecture**

3 **Discussion**

Initially, a pilot period of some months was set, during which a subset of employees was attending the modules. The employees were selected from several divisions, in a way that they formed a representative group according to age distribution and different backgrounds.

After this pilot period, an overall assessment of the platform was executed based on interviews and questionnaires. Some indices which aggregate individual feedback were constructed to depict major findings. Overall satisfaction index depicts in what degree the method and platform was aligned with the employees’ expectations. From the findings, as depicted below (Fig. 5), we can identify high satisfaction by over 50% of the participating employees, which in turn means that the method can be deployed without major acceptance problems between all levels of employees.

**Fig. 5.- Employees’ satisfaction index**

4 **Conclusion**

An outline of our architecture leading towards online teaching of IT modules to banking employees, was presented. From the initial findings it can be concluded that acceptance was quite high. However, the infrastructure itself must be user-friendly; otherwise the technology will distract the
trainees from the content being presented. Our proposal is well fitted within an e-learning platform with minor modifications. Our future plans include full deployment and interface optimization according to feedback from employees.

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